

CLAIMS

I Claim:

1. A composition for applying to a wound for promoting healing comprising:
 - (i) an antioxidant in which the active center is a 2,2,6,6-tetraalkyl piperidinyl group and in which the nitrogen atom in the piperidine ring in the active center is attached to a group selected from the group consisting of H (hydrogen), alkyl, O (oxygen radical), alkoxy, acyloxy, and hydroxyalkoxy, and
 - (ii) an inert carrier that comprises a hydrogel.
2. The composition of claim 1 in which the antioxidant is selected from the group consisting of:

bis(2,2,6,6-tetramethyl-4-piperidyl)sebacate,
bis(2,2,6,6-tetramethyl-4-piperidyl)succinate,
bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate,
bis(1-octyloxy-2,2,6,6-tetramethyl-4-piperidyl)sebacate,
bis(1,2,2,6,6-pentamethyl-4-piperidyl) n-butyl-3,5-di-tert-butyl-4-hydroxybenzylmalonate,
the condensate of 1-(2-hydroxyethyl)-2,2,6,6-tetramethyl-4-hydroxypiperidine and succinic acid,

the condensate of N,N'-bis(2,2,6,6-tetramethyl-4-piperidyl)hexamethylenediamine and 4-tert-octylamino-2,6-dichloro-1,3,5-triazine, tris(2,2,6,6-tetramethyl-4-piperidyl)nitrilotriacetate, tetrakis(2,2,6,6-tetramethyl-4-piperidyl)-1,2,3,4-butane-tetracarboxylate, 4-benzoyl-2,2,6,6-tetramethylpiperidine, 4-stearylxy-2,2,6,6-tetramethylpiperidine, bis(1,2,2,6,6-pentamethylpiperidyl)-2-n-butyl-2-(2-hydroxy-3,5-di-tert-butyl-benzyl)malonate, 3-n-octyl-7,7,9,9-tetramethyl-1,3,8-triazaspiro[4.5]decan-2,4-dion, bis(1-octyloxy-2,2,6,6-tetramethylpiperidyl)sebacate, bis(1-octyloxy-2,2,6,6-tetramethylpiperidyl)succinate, the condensate of N,N'-bis-(2,2,6,6-tetramethyl-4-piperidyl)hexamethylenediamine and 4-morpholino-2,6-dichloro-1,3,5-triazine, the condensate of 2-chloro-4,6-bis(4-n-butylamino-2,2,6,6-tetramethylpiperidyl)-1,3,5-triazine and 1,2-bis(3-aminopropylamino)ethane, the condensate of 2-chloro-4,6-di-(4-n-butylamino-1,2,2,6,6-pentamethylpiperidyl)-1,3,5-triazine and 1,2-bis-(3-aminopropylamino)ethane, 8-acetyl-3-dodecyl-7,7,9,9-tetramethyl-1,3,8-triazaspiro[4. 5]decane-2,4-dione, 3-dodecyl-1-(2,2,6,6-tetramethyl-4-piperidyl)pyrrolidin-2,5-dione, 3-dodecyl-1-(1,2,2,6,6-pentamethyl-4-piperidyl)pyrrolidine-2,5-dione, a mixture of 4-hexadecyloxy- and 4-stearylxy-2,2,6,6-tetramethylpiperidine,

the condensation product of N,N'-bis(2,2,6,6-tetramethyl-4-piperidyl)hexamethylenediamine and 4-cyclohexylamino-2,6-dichloro-1,3,5-triazine,

the condensation product of 1,2-bis(3-aminopropylamino)ethane and 2,4,6-trichloro-1,3,5-triazine as well as 4-butylamino-2,2,6,6-tetramethylpiperidine,

N-(2,2,6,6-tetramethyl-4-piperidyl)-n-dodecylsuccinimid, N-(1,2,2,6,6-pentamethyl-4-piperidyl)-n-dodecylsuccinimid, 2-undecyl-7,7,9,9-tetramethyl-1-oxa-3,8-diaza-4-oxo-spiro[4,5]decane, and

the reaction product of 7,7,9,9-tetramethyl-2-cycloundecyl-1-oxa-3,8-diaza-4-oxospiro [4,5]decane and epichlorohydrin.

3. The composition of claim 1 in which the carrier is a mixture of water and a polymer selected from the group consisting of polyacrylamide, polymethacrylic acid, copolymers of diacetone acrylamide (DAA) and hydroxyethyl acrylate (HEA), polylactic acid, polyglycolic acid, polyacrylonitrile, and polyvinyl alcohol.

4. A composition for applying to a wound for healing comprising;

(i) an antioxidant in which the active center is a hindered phenol moiety, and

(ii) an inert carrier that comprises a hydrogel.

5. The composition of claim 4 in which said antioxidant is selected from the group consisting of:

tetrakismethylene(3,5-di-t-butyl-4-hydroxyhydrocinnamate)methane,
octadecyl 3-(3', 5'-di-t-butyl-4'-hydroxyphenyl)propionate,
2,2'-thiodiethylene bis(3-(3,5-di-t-butyl-4-hydroxyphenyl)propionate),
2,2'-ethylidenebis(4,6-di-t-butylphenol),
1,3,5-tris(3,5-di-t-butyl-4-hydroxybenzyl)isocyanurate,
1,3,5-trimethyl-2,4,6-tris(3,5-di-tert butyl-4-hydroxybenzyl) benzene,
2,2'-methylenebis(6-t-butyl-4-methylphenol),
4,4'-butylidenebis(2-t-butyl-5-methylphenol),
2,2'-isobutylidenebis(4,6-dimethylphenol),
2,5-di-t-amylhydroquinone,
1,1,3-tris(2'-methyl-4'-hydroxy-5'-t-butylphenyl)butane,
1,3,5-tris(4-t-butyl-3-hydroxy-2,6 dimethylbenzyl)-1,3,5-triazine-2,4,6-(1H,
3H, 5H)-trione,
N, N'-hexamethylene-bis(3-(3,5-di-t-butyl-4-hydroxyphenyl)propionamide),
4,4'-thiobis(2-t-butyl-4-methylphenol),
2,2'-methylenebis(4-methyl-6-(1-methylcyclohexyl)phenol),
and
triethylene glycol bis(30(3-tert-butyl-4-hydroxy-5-
methylphenyl)propionate),

6. The composition of claim 4 in which the carrier is a mixture of water and a polymer selected from the group consisting of polyacrylamide, polymethacrylic acid, copolymers of diacetone acrylamide (DAA) and hydroxyethyl acrylate (HEA), polylactic acid, polyglycolic acid, polyacrylonitrile, and polyvinyl alcohol.

7. A method for treating a wound in a vertebrate comprising the step of allowing the wound to come into contact with the composition of claim 1.

8. The method of claim 7 for treating a wound in a vertebrate further comprising the steps of

- (i) allowing the the wound to remain in contact with the composition of claim 1 for a period of between 3 and 7 days,
- (ii) applying to the wound further treatment modalities.

9. A method for treating a wound in a vertebrate comprising the step of allowing the wound to come into contact with the composition of claim 4.

10. The method of claim 9 for treating a wound in a vertebrate further comprising the steps of

- (i) allowing the the wound to remain in contact with the composition of claim 4 for a period of between 3 and 7 days,
- (ii) applying to the wound further treatment modalities.